Event no: 134

# Department of EEE & SRM MTS Student Chapter

## Three Days Workshop on "Power System Analysis and Research Studies Using DIGSILENT PowerFactory"

**Venue: NI ACADEMY RESEARCH LAB, Electrical Science Block**

SRM INSTITUTE OF SCIENCE & TECHNOLOGY
(Deemed to be University u/s 3 of UGC Act, 1956)

marine technology SOCIETY
Opportunity runs deep
INDIA Section

SRM-MTS Student Chapter
Dare to Dive Deep

HCLTech

# WORKSHOP AGENDA

| DAY | SESSION | TIMINGS | TOPIC |
|---|---|---|---|
| DAY-1 | SESSION-1 | 9:00-9:30 | Basics of Load Flow Analysis |
| | | 9:30-10:30 | Case study on Load Flow Analysis |
| | | 10:30-10:45 | Tea Break |
| | SESSION-2 | 10:45-11:15 | Short circuit analysis |
| | | 11:15-12:30 | Case study on short circuit analysis |
| | | 12:30-1:30 | Lunch Break |
| | SESSION-3 | 1:30-2:00 | RMS/EMT Simulation |
| | | 2:00-2:30 | Case study on RMS/EMT Simulation |
| | | 2:30-2:45 | Coffee Break |
| | SESSION-4 | 2:45-4:00 | Transmission and Distribution network tools and case study |
| | | | |
| DAY-2 | SESSION-5 | 9:00-9:30 | Contingency Analysis |
| | | 9:30-10:30 | Case study on Contingency Analysis |
| | | 10:30-10:45 | Tea Break |
| | SESSION-6 | 10:45-11:15 | Modal and Eigen value analysis (Small signal stability and Transient stability analysis) |
| | | 11:15-12:30 | Case study on Modal and Eigen value analysis |
| | | 12:30-1:30 | Lunch Break |
| | SESSION-7 | 1:30-2:00 | Power Quality and Harmonic Analysis |
| | | 2:00-2:30 | Case study on Power Quality and Harmonic Analysis |
| | | 2:30-2:45 | Coffee Break |
| | SESSION-8 | 2:45-3:15 | Cable Sizing |
| | | 3:15-4:00 | Case study on Cable Sizing |
| | | | |
| DAY-3 | SESSION-9 | 9:00-9:30 | Insulation Coordination |
| | | 9:30-10:30 | Case study on Insulation Coordination |
| | | 10:30-10:45 | Tea Break |
| | SESSION-10 | 10:45-11:15 | Protection Functions |
| | | 11:15-12:30 | Case study on Protection Functions and ARC Flash analysis |
| | | 12:30-1:30 | Lunch Break |
| | SESSION-11 | 1:30-2:30 | Design of controller in Digsilent |
| | | 2:30-2:45 | Coffee Break |
| | SESSION-12 | 2:45-3:15 | Scripting in DPL and Python |
| | | 3:15-4:00 | Hands on Training |

On 7th May, 2024, Dr. K. Vijayakumar, Professor and Head, Dr. J. Preetha Roselyn, Professor at SRM Institute of Science and Technology, Ms. Priyadharshini, HR Manager at HCLTech, was gathered in NI Research lab, ESB at 9:00 AM for Inaugural function. Dr. K. Vijayakumar gave a welcome address followed by the workshop schedule was explained in detail by Dr. J. Preetha Roselyn. Ms. Priyadharshini, HR Manager gave the vote of thanks. The attendees of the workshop included the organizers – B. Tech, M. Tech students, and HCL Employees. The speakers for this workshop are Faculty members and Research scholars.

The session began with how to design an IEEE 9 bus system and how to perform load flow analysis in Digsilent Powerfactory was conducted by Dr. J. Preetha Roselyn. Ms. E. Priya, Research Scholar, explained the theory behind the power flow problem formulation. The second session short circuit analysis was explained with a numerical example and the same was simulated in Digsilent was explained by Ms. C. Nithya, Associate professor. The tool bars for performing short circuit analysis were delivered by Ms. Sujatha B, Research scholar. The third session RMS/EMT Simulation was explained by Ms. Sujatha B, Research scholar. And the final session was handled by Mr. Vignesh in Transmission and Distribution network tools and case study.

On 2$^{nd}$ day of the workshop, the first session was handled by Ms. E. Priya on the topic of Contingency analysis followed by the case study. Ms. T. Nivetha handled the second session on Modal and Eigen value analysis. The third session was handled by power quality harmonics by Ms. Sujatha B. The final session on cable sizing was delivered by Mr. Prateek.

On 3$^{rd}$ day of the workshop the morning session was handled by Ms. Sujatha B on the topic of protective functions and the afternoon session was conducted on the topic of controller designs involved in Automatic voltage regulator in synchronous generator.

Dr. J. Preetha Roselyn encouraged us all to give our all and use the resources available here to their maximum capabilities. HCLTech employees thanked Dr J. Preetha Roselyn and engaged in a very detailed Q&A session with the audience.